



bulls-i
unicorn
Full HD resolution

ETK-B2400

User Manual



Safety Warnings and Precautions

Scope of Warranty and Liabilities

- This product is a road safety accessory and the manufacturer is not liable for any losses brought on by malfunctions, loss of data or any other forms of losses from using this product.
- This product is an accessory designed for the specific purpose of recording and saving captured video footage of the areas near the vehicle. Certain functions may not be supported depending on the driving conditions and vehicle conditions. The firmware updates for improving performance may result in different performance by each product. The video may not be recorded depending on the conditions in which the device is used. Please use the device only for your reference. The recording may not take place depending on the status of the microSD card.
- This device is designed to capture and save accident footages of the vehicle in which the product is installed in. However, it does not guarantee that every accident footage will be recorded. Accidents with very minor level of impact may not activate the impact sensor and the accident may not be recorded as an event footage.
- In vehicles that use smart keys, the batteries may discharge while in Parking Mode.

Safety Warnings and Precautions

Please read the following warnings and cautions thoroughly. These warnings and cautions were made for the safety of the users and to prevent any potential damage caused by improper use.



Failure to follow these safety warnings could lead to a serious injury or death.



Failure to follow these cautions could lead to an injury or cause loss of property.



Do not operate the product while driving.

Operating the product while driving can lead to driver distractions. If you need to operate the product, do so after pulling over to a safe location.



Do not disassemble, or modify the product.

Unauthorized disassembly or modifications of the product can cause product malfunctions. These malfunctions are not covered under the product warranty.



Do not cover or place anything on the product, allow for ventilation.

It can damage the product and lead to a malfunction.



Do not operate the product if it has been exposed to debris.

If foreign debris has got on the product, disconnect the power and clean thoroughly with a soft cloth. Note: Use caution if using cleaning solvents.



Do not use the product if it is malfunctioning.

In the event of a malfunction, disconnect the power supply and contact your place of purchase.



Only use properly rated fuses for the power outlet.

When you need to replace the fuse, make sure to use a correctly rated fuse. Using a fuse with an incorrect rating can cause a fire.

Safety Warnings and Precautions



If you need to replace the power cable, mount, or any other part, use original parts offered by the manufacturer only.

The consumer is responsible for all malfunctions and accidents resulting from use of unauthorized parts.



When installing the product, make sure it does not obstruct the driver's field of view.

Obstructing the driver's field of view can lead to driver distraction. Recommended location for mounting the product, the upper portion of the front windshield, along the central axis of the vehicle.



Do not expose the product to moisture or store it under a highly humid environment for an extended period of time.

Damage to the product may occur and lead to malfunctions.



Do not expose the product to the direct heat of the vehicles heating system or other heat-generating appliance.

Exposure to high heat can cause damage to the product and lead to malfunctions.



When installing the product, make sure it does not impede with the operation of other onboard devices such as the airbag system.

Impeding the operation of other onboard devices can lead to an injury.



Maintain the ambient temperature to between 0°C and 50°C/32°F and 122°F.

Temperatures outside this range can lower the performance or damage the product and lead to malfunctions.



Do not place beverages, chemicals, or other potentially harmful items near the product.

It can damage the product and lead to malfunctions.



Do not power off the product abruptly or operate it in an abnormal manner.

Doing so can damage the microSD card and the product.

Safety Warnings and Precautions



Do not touch the product with greasy or wet hands.

It can damage the product and lead to malfunctions.



Protect the product from heavy impact.
It can damage the product and lead to malfunctions.



Do not place the product near a magnet, a CRT TV, or any other item emitting a strong magnetic field.
It can damage the product and lead to malfunctions.



Remove any sunshade film or any other material obstructing the view.
It may hinder the quality of images recorded.



Use approved SD memory cards only.
Failure to comply can lead to data loss on the SD memory card.



Do not put anything inside the external microSD memory card slot except for the card itself.

It can damage the product and lead to malfunctions.



Do not operate the product with sharp instruments such as a pen or pencil.
It can damage the product and lead to malfunctions.



Do not attach a sticker or apply paint on the device or the microSD card.
It can damage the product or microSD card and lead to malfunctions.



Do not take the microSD card out during operation.
This can damage the product and any data on the microSD card.



Replace old SD memory cards.
Prolonged usage of the microSD memory card can lead to data loss.

Safety Warnings and Precautions



Data Loss/Corruption (microSD Card Care)

Damage to the microSD card can result in data corruption or loss.

- microSD card is a highly sensitive piece of technology that can become defective due to changes in external environment or severe impact. Protect the card against impact and damage.
- The manufacturer will not be held responsible in the event of microSD card damage due to user negligence or external factors.
- ※ We recommend using bulls-i models ETK - XX GB microSD cards.

Causes of microSD Card Damage and Data Corruption

- External impact during installation/uninstallation.
- Abnormal disruption in power supply, such as sudden disconnection of the power cable while the black box is in use, can damage the microSD card.
- External impact on the product while it is in operation can also cause data corruption or damage the microSD card itself. To minimize loss and damage brought on by microSD card damage regularly check and back up your data.

Safety Warnings and Precautions



Caution Format the microSD card once a month.



microSD Card Use

microSD cards have a service life. When the card you are using reaches the end of its service life, check the card for damage and replace it with a new unit. The actual service life of a given microSD card varies depending on the actual use and care of the card.

microSD Card Recording Capacity Guide (Recording Quality: High)



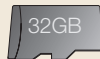
4GB: 1 hrs to
1 hrs 30 mins



8GB: 2 hrs to
2 hrs 30 mins



16GB: 3 hrs 30 mins
to 4 hrs



32GB: 6 hrs 30 mins
to 7 hrs

※ This product has been designed as a road safety accessory. The manufacturer will not be held liable whatsoever in the event of an accident while using this product. Please use this product for intended purposes only.

Recommended microSD Cards

We recommend that you purchase bulls-i 8GB/16GB microSD cards from an authorized dealer. Visit www.bulls-i.com and navigate to Customer Center > Notices > bulls-i 8GB/16GB microSD Card Retail Information.

Transcend class 10 microSD cards are also compatible. (Supports HD and SDHC)

※ microSD Card Warranty: 6 months

Safety Warnings and Precautions



GPS Use

- If you are using the product for the first time or using it after an extended period of nonuse (3 days or longer), it will take longer than usual for the GPS to determine your current location.
- GPS signal strength is susceptible to weather conditions (rain, fog, etc.) and radio wave interference.
- The ideal ambient temperature range for the GPS receiver is 0°C - 60°C/32°F -140°F. Maintain this temperature range inside the vehicle, especially during summer and winter months.
- GPS reception may be low underneath an overpass, inside a tunnel, or with a high density of buildings nearby.
- The GPS receiver may not function properly in vehicles with special coating or tinting on the windshield or equipped with electromagnetic wave-generating devices on board.
- GPS reception may be low or unavailable altogether near high-rise buildings or power cables due to the effects of high voltage.
- With poor GPS reception, it may take longer to determine the current location if the vehicle is moving.
- Time and speed displays may not function properly in GPS shadow zones and under poor GPS reception conditions.

Main Features



Full-HD Video

- 1920 x 1080 (Full-HD)
- Video Compression: H.264



Highly Sensitive GPS Receiver (sold separately)

- Uses incoming GPS signals to indicate the current location, speed, and route on Google Maps®.



Security LED

- Security LED activation in Parking Mode.



Parking Mode

- Starts recording when motion or impact is detected while the vehicle is parked.



Voice Guidance

- Voice responses for greater ease of use.



Wi-Fi Smartphone Connectivity

- View real-time video feeds, play back recordings, configure settings, receive alerts, report accidents, and GPS track using your smartphone.



Video Out

- View real-time video feeds and change the settings on external AV devices such as a GPS navigation unit.



Battery Protection

- Prevents the batteries from completely discharging while in Parking Mode.

Main Features



Wide Recording Angle

- 140° Recording Angle



Constant Power (Triaxial)

- Automatically activates Parking Mode when ignition is shut off.



3-Axis Acceleration Shock Detection Sensor

- Shock Detector with Adjustable Sensitivity.



microSD Formatting

- Format the microSD directly from the bulls-i.



DC: 12V to 24V



Event Recording



Continuous Recording



Manual Recording



Upgrade via microSD Card



Overwriting



Audio Recording On/Off



Settings

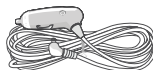
Accessories



bullsi Vehicle Drive Recorder



Mount



**Power Cable
(Plug-in or Wire-in)**



**microSD Card
Reader**



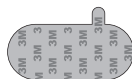
**microSD Card
(adapter included)**



Cable Clips



User Manual



Double-sided Tape



- Images used in this manual may differ from the actual product.
- Accessories offered by the manufacturer as part of the product package may change without prior notice.

Accessories

Accessories (Sold Separately)



Video Cable



GPS



Wi-Fi Dongle

※ Available for purchase at www.bulls-i.com



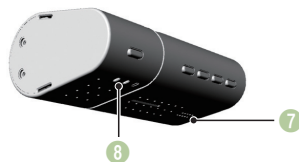
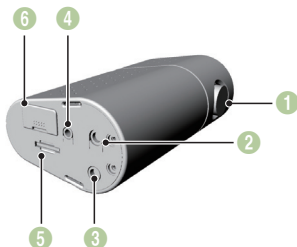
- Images used in this manual may differ from the actual product.

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1. Overview

1-1 bulls-i

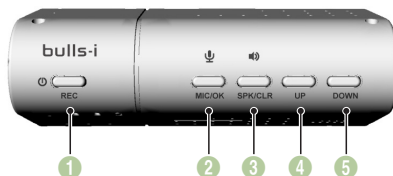


Name	Function	Name	Function
1. 1. Camera Lens	Records front-facing video.	5. 5. Memory Card Slot	Slot for microSD cards.
2. 2. Power Jack	Input for the power cable.	6. 6. Wi-Fi Dongle Port	Port for the Wi-Fi dongle.
3. 3. GPS IN	Input for the GPS cable.	7. 7. Speaker (buzzer)	Emits auditory signals and warnings and voice guides.
4. 4. Video IN	Input for the video cable.	8. 8. LED	Indicates the bulls-i operating status.



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- Accessories offered by the manufacturer as part of the product package may change without prior notice.

1. Overview



		Basic Function	Video Out Function
1	Power/Rec	Power on/off (hold for 3 seconds)/Manual recording (normal press)	Manual Recording
2	OK/MIC	Audio recording on/off	Menu mode on/off (hold)
3	CLR/SPK	Speaker on/off/Wi-Fi data reset (hold for 5 seconds and select OK (yes))	Previous menu
4	UP	System reset (hold for 5 seconds and select OK (yes))	Folder navigation and file selection
5	DOWN	microSD card formatting (hold for 5 seconds and select OK (yes))	Folder navigation and file selection



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1. Overview



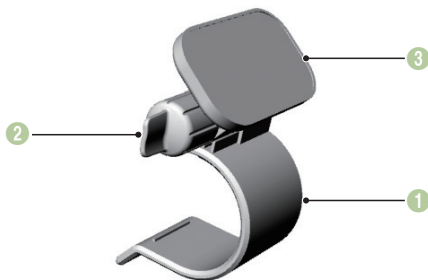
Name		Function
1	Power LED	Flashes during power up and stay lit when powered on
2	Event LED	Turns on when event (impact), manual, and parking recording is in progress
3	GPS LED	Turns on when receiving a GPS signal
4	Security LED	Flashes while in Parking Mode and stays lit when recording is in progress while in Parking Mode
5	Speaker LED	Turns on when the speaker is turned on.
6	MIC LED	Turns on when audio recording is turned on.



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1. Overview

1-2 Mount



	Name	Description
1	Mount	Used to attach and detach the bulls-i to the vehicle.
2	Mount Angle Adjuster	Adjust the angle and tighten the screw to set in place.
3	Double-Sided Tape	Used to attach the mount to the front windshield.

2. Installation

2-1 Precautions

Parts & Accessories

- Make sure you have all the parts and accessories before installing the bulls-i. ► Page 11
- If you are missing parts or accessories, contact your place of purchase.

Installation

The bulls-i's position on the front windshield and its forward-facing angle greatly affect the video recording quality. Follow these instructions to get the best results:

- Install the mount on the central axis of the vehicle.
- Do not use the bulls-i without the mount.
- Do not place any item between the bulls-i and the front windshield or cover up the bulls-i.
- Secure the mount in place using the double-sided tape. However, make sure the windshield area where you will be attaching the mount to is free of dust and other forms of contaminants.

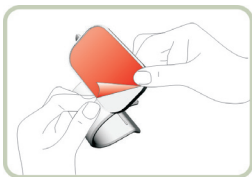
2. Installation

2-2 bulls-i Installation

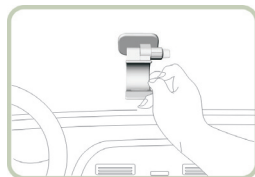
Check the installation site and have everything in place. Refer to page 2 for installation precautions. This device must be installed on the central axis of the vehicle and on the upper portion of the windshield in order to achieve optimal recording performance.



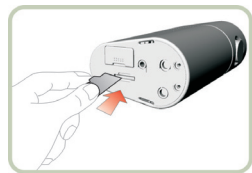
- 1** Clean the windshield using a clean piece of cloth.



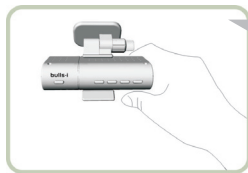
- 2** Remove the protective film from the strip of double-sided tape attached to the mount.



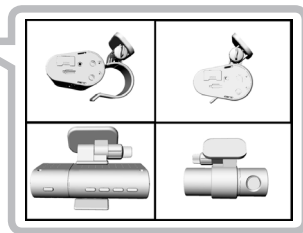
- 3** Attach the mount flush to the windshield.



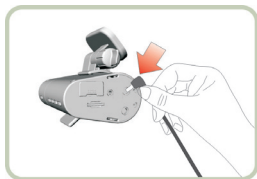
- 4** Insert the microSD card all the way inside the bulls-i's microSD card slot until it clicks in.



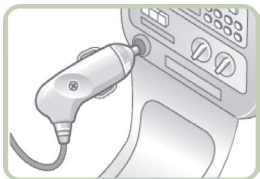
- 5** Attach the bulls-i to the mount.



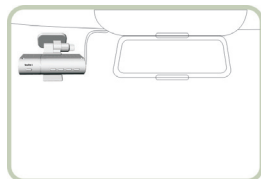
2. Installation



6 Connect the power cable to the unit's PWR IN port.



7 Insert the other end of the power cable into the vehicle's power outlet.



8 Use the included cable clips to hide loose cables.

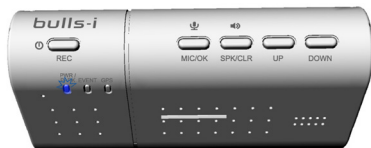


- The unit generates warning messages if the microSD card is not recognized. (audio message and LED)
- Contact a professional installer if you wish to use the constant power source cable. Black: GND/White: ACC/Red: BAT(B+)
- If you are not using GPS, you can set the clock using the PC viewer.

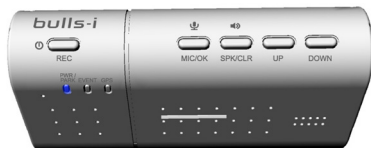
3. Using the bulls-i Vehicle Drive Recorder

3-1 Recording

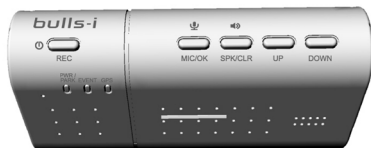
3-1-1. Powering On and Continuous Recording



- 1 **Turn the unit on.**
– The blue LED will flash.



- 2 **Start recording.**
– The unit generates warning messages. (audio message and LED) The unit begins [Continuous Recording] once the LED lights up steadily.



- 3 **End recording.**
– Shut off the ignition and the unit will turn off after 10 to 20 seconds of data parsing. (Switches to Parking Mode automatically if using a constant power source.)

3. Using the bulls-i Vehicle Drive Recorder

3-1-2. Event Recording



Recording is automatically triggered in the event of an impact detection.

– Blue and Red LEDs: On/Buzzer: 2 beeps

3-1-3. Manual Recording

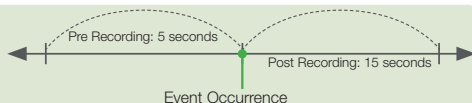


Press the power button to start recording.

– Blue and Red LEDs: On/Buzzer: 2 beeps

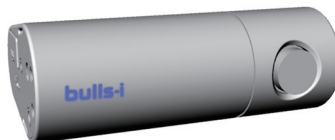


In Event Recording, it records a total of 20 seconds per event, 5 seconds prior to the event and 15 seconds after the event. Recording time may vary depending on image quality and resolution settings.



3. Using the bulls-i Vehicle Drive Recorder

3-1-4. Parking Mode Recording



If connected to a constant power source, the bulls-i automatically begins recording.

- Security LED: Flashes in Parking mode.
- Security LED: Steadily lit while recording in Parking mode.

Values configured under Settings during video out or using the Dedicated Viewer apply to Parking mode recordings.

Continuous	Continuous and impact recording
Motion	Motion and impact recording
Impact	Impact recording

3. Using the bulls-i Vehicle Drive Recorder

3-2 Reset

3-2-1. Resetting Wi-Fi Data



1. Press and hold the SPK/CLR key for 5 seconds.
2. LEDs above the OK and CLR keys light up.
3. To reset, press the OK key. If not, press the CLR key.

3-2-2. Resetting Settings



1. Press and hold the UP key for 5 seconds.
2. LEDs above the OK and CLR keys light up.
3. To reset, press the OK key. If not, press the CLR key.

3-2-3. Formatting Memory Card



1. Press and hold the DOWN key for 5 seconds.
2. LEDs above the OK and CLR keys light up.
3. To reset, press the OK key. If not, press the CLR key.

3. Using the bulls-i Vehicle Drive Recorder

3-3 microSD Memory Card Removal

Always remove the microSD card from the slot in the following order:

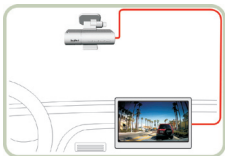
- 1 Shut off the ignition and then hold the unit's power button for 3 seconds to turn it off. (Alternatively, you can unplug the power cable from the unit or the cigarette jack.)
- 2 Push down on the microSD card. Once the card pops out, remove it from the slot.



Removing the microSD card while the black box is turned on will cause data corruption.

4. Video Out

4-1 Video Out Connection

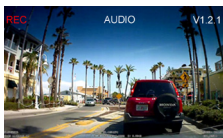


Connect the video cable to a GPS navigation unit or an external AV device.

4-1-1 Booting and Recording



- 1** Once bulls-i is powered on, it will take 10 to 15 seconds for the unit to boot up.
- Blue LED flashes.



- 2** Once the bulls-i finishes booting up, it will automatically enter Continuous Recording mode. (Home Screen)
- Blue LED lights up steadily.



- 3** Once the vehicle's ignition is turned off, it will take 10 to 15 seconds for bulls-i to save the recording file and turn off.
- All LEDs turned off.

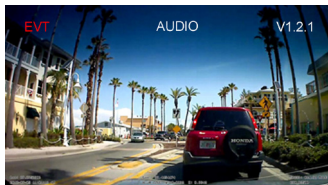


Video Out is not supported in Parking mode.

4. Video Out

4-1-2. Event Recording

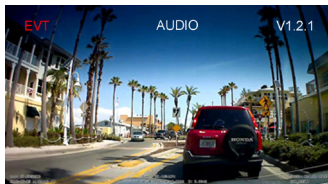
Live View > Event Recording Screen



Event recording message will appear in the event of an impact detection while in Live View mode.

– Blue and Red LEDs: On/Buzzer: 2 beeps

4-1-3. Manual Recording



Press the power button to start manual recording.

– Blue and Red LEDs: On/Buzzer: 2 beeps



Continuous and Event (impact) recording is not supported while in menu mode.

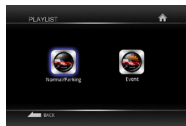
4. Video Out

4-2 Recording Playback and Settings

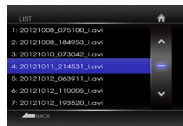
4-2-1 Recording Playback (under development)



Press and hold the OK key to enter the menu mode.



Press the OK key to access the video playback menu.



Select a file from the video list and press the OK key.



Selected file is played on the screen.

Continuous/Parking

List of Continuous recordings

Event

List of Event recordings



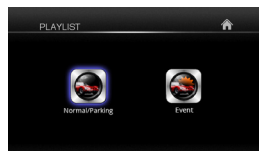
Menu mode will automatically switch over to Continuous Recording screen after 10 seconds of inactivity. Menu mode cannot be accessed while Event recording is in progress.

4. Video Out

4-2-2 Settings



Press and hold the OK key to enter the menu mode.



Press the OK key to access the settings menu.

Speaker	Activates/deactivates buzzer warnings and voice guides.
Sound Recording	Activates/deactivates audio recording via the MIC.
Image Quality	Specify the recording image resolution.
Parking	Specify the recording mode to use when parked.
Impact Sensitivity	Used to adjust the impact detection sensitivity.
Format microSD Card	Formats the microSD card.

4. Video Out

4-2-2-1 Functions

Settings > Speaker



Adjust the buzzer and voice guide volume.

- Muting the speaker volume turns off the speaker LED.



Settings > Audio Recording



Activates/deactivates audio recording via the MIC.

- Setting this option to turns on the MIC LED.



4. Video Out

Settings > Image Quality



Specify the recording image resolution.

- 1080p: Full HD

- 720p: HD

Settings > Parking Mode Recording



Parking recording is activated automatically when the ignition is turned off. There are 3 Parking modes to choose from.

- * Motion Detection Parking Mode: This is the default setting. Recording automatically starts when motion or change in the lighting condition is detected.
- * Continuous Parking Mode: Constantly records video while the vehicle is parked.
- * Impact Parking Mode: Recording automatically starts when impact is detected.



In order to maximize the microSD card's recording capacity, we recommend you use the Motion Detection Parking mode.

Settings > Impact Sensitivity



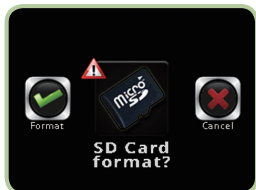
Used to adjust the impact detection sensitivity. (Recommended Setting: Medium)

4. Video Out

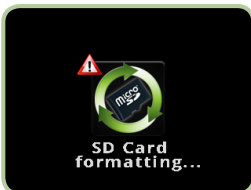
Settings > Foarmat SD



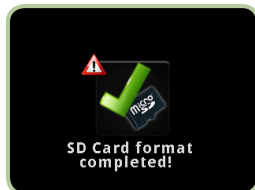
This option formats the microSD card inserted into bulls-i.



- 1** Format: Formats the card.
Cancel: Cancels formatting.



- 2** Formatting in Progress



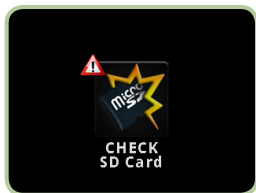
- 3** Once formatting is complete, bulls-i will reboot.



Do not remove the micro SD card while formatting is in progress.

4. Video Out

4-3 Warnings and Cautions



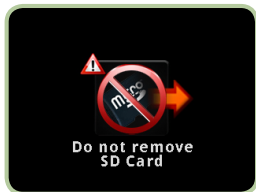
When a microSD card is missing or a microSD card error has occurred.



When switching to a different mode.



Resuming recording.



When upgrading firmware.

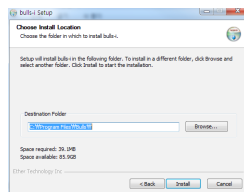
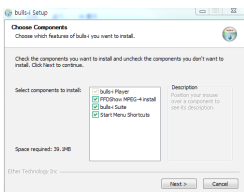


When it's time to format the microSD card. (Once a month)

5. Using the Dedicated Viewer

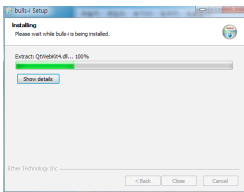
5-1 Program Installation

The viewer lets you play back recorded video on a computer.



2 Designate the installation folder and click [Install].

1 Uncompress the downloaded file and double-click "setup.exe". To download the program, visit www.bulls-i.com and navigate to Downloads.



bulls-i
Viewer



bulls-i Suite

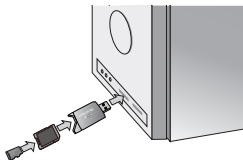
4 A launch icon will appear on the desktop.

- bulls-i Viewer: Viewer
- bulls-i Suite: Launcher

3 Once the program is installed, click [Close].

5. Using the Dedicated Viewer

5-2 Launching the Program

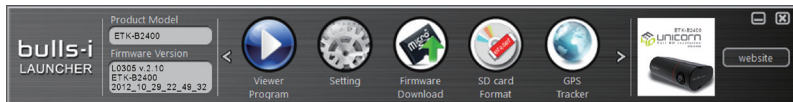


- 1 Connect microSD Card to the Computer**
– Insert the micro SD card into the reader and then plug in the reader to your computer's USB port.

- 2 Launching the Program**
– Double-click on the launcher icon on the desktop.



Make sure the micro SD card is right side up when inserting it into the reader.



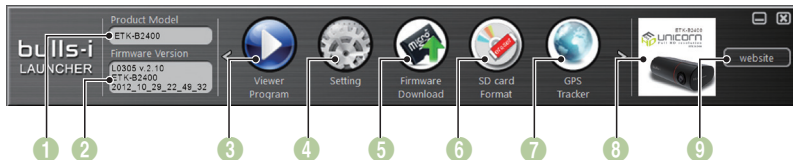
- 3 Program launcher will appear on the screen.**



The viewer and the launcher operate in conjunction with one another.

5. Using the Dedicated Viewer

5-3 Using the Launcher



	Name	Description
1	Model	Inserting the micro SD card displays the product's model name.
2	Firmware Version	Inserting the microSD card displays the product's firmware version.
3	Viewer (Analysis) Program	Launches the dedicated viewer.
4	Settings	Launches the viewer's settings screen.
5	Firmware Download	Downloads the latest firmware version.
6	Format microSD Card	Lets you format the micro SD card from your computer.
7	Miscellaneous	New bulls-i feature.
8	New Product Info	Introduces new bulls-i products.
9	Website Link	Link to the bulls-i website.

5. Using the Dedicated Viewer

5-4 Dedicated Viewer






- In order to use Google Maps, you will need to have Internet access and Internet Explorer 7.0 or above installed on your system.
- The map feature may not function properly with files that are missing GPS data due to poor signal reception at the time of their recording.
- The map feature is only available when the GPS module (optional) is connected to the unit.

	Name	Description
1	Main Panel	Displays the front camera's recording.
2	3-axis Sensor Sensor Readings	Displays the impact sensor's axial (X, Y, and Z) readings.
3	Speedometer	Displays the vehicle's speed. (GPS models only)
4	GPS Signal	Indicates the GPS signal reception status. (GPS models only)
5	Video Progress Bar	Indicates video playback progress.
6	Coordinates	Displays lateral and longitudinal GPS coordinates. (GPS models only)
7	Panel Swap	Used to swap the main panel with the sub-panel. (2CH models only)
8	Sub-Panel	Displays the rear camera's recording. (2CH models only)
9	Map	Indicates the vehicle's location on a map. (GPS models only)
10	Open	Used to select and open a file for playback.













5. Using the Dedicated Viewer

5-5 Dedicated Viewer Controls

	Name	Description
1	 Settings	Used to configure bulls-i's settings.
2	 Screenshot	Captures and saves a screenshot of the video. (.png or .jpg)
3	 Print	Prints the current frame.

5. Using the Dedicated Viewer

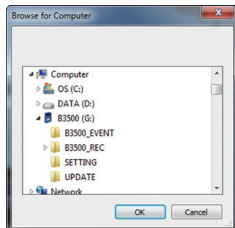
5-5 Dedicated Viewer Controls

	Name	Description
1	 Play	Plays the selected video file.
2	 Pause	Pauses playback.
3	 Stop	Stops playback.
4	 Previous File	Plays back the previous file.
5	 Rewind 1 Frame	Rewinds by 1 frame.
6	 Fast Forward 1 Frame	Fast forwards by 1 frame.
7	 Next File	Plays back the next file.
8	 Zoom-In	Zooms in on the video.
9	 Zoom-Out	Zooms out from the video.
10	 1:1 Ratio	Displays the video in its original ratio.
11	 Pan	Pan while zoomed-in on a video.
12	 Vertical Flip	Vertically flips the video.

5. Using the Dedicated Viewer

5-6 Open File

 Click on the button and select a file.



5-7 Route Display (GPS)

Displays the route taken on a map using GPS data.



- This feature is available with models that have the GPS module installed only.
- This feature is only available with an Internet connection.

5. Using the Dedicated Viewer

5-8 Miscellaneous Features

Full Screen: Right-clicking on the playback screen displays it in full screen mode.



5. Using the Dedicated Viewer

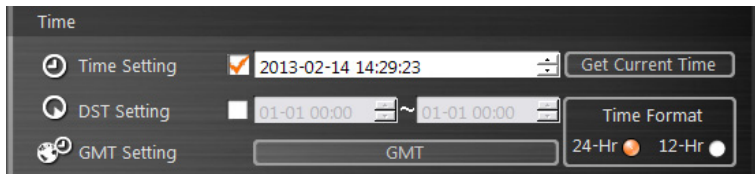
5-9 Program Settings



Video/Audio	Resolution	Specify the resolution you wish to use.
	Video Quality	Adjust the video recording quality.
	Video Frame Rate	Choose the frame rate.
	Sound Recording	Activate/deactivate audio recording.
	Sound Volume	Adjust the buzzer and voice guide volume.
Time	Time Setting	Used to set the black box's system clock. You can retrieve and use the computer's system time settings. (Make sure the computer's time setting is correct.)
	DTS Setting	Subtracts 1 hour from the clock during the specified period. Use if DST is in effect in your area. The clock will be adjusted automatically on the specified starting date.
	GMT Setting	Used to select your time zone.
Function	Shock Sensitivity	Adjust the impact detection sensitivity.
	Event Files	Specify the number of event files to keep on the memory card.
	Motion Sensitivity	Used to adjust the motion detection sensitivity for Parking mode.
	Battery Prevention	Specify when you want the Battery Protection feature to be activated.
	Speed Unit	Specify the black box's speed unit.
	Security LED	Enable/disable security LED while parked.
Viewer Settings	Language	Select the viewer's display language.
	Speed Unit	Specify the speed unit displayed on the viewer.

5. Using the Dedicated Viewer

5-10 Clock



The screenshot shows a 'Time' settings window with a dark background. It contains three main sections: 'Time Setting', 'DST Setting', and 'GMT Setting'. The 'Time Setting' section has a clock icon, a checked checkbox, and a text field displaying '2013-02-14 14:29:23'. To its right is a 'Get Current Time' button. The 'DST Setting' section has a clock icon, an unchecked checkbox, and two date-time pickers showing '01-01 00:00' and '01-01 00:00' separated by a tilde '~'. The 'GMT Setting' section has a globe icon and a button labeled 'GMT'. To the right of these sections is a 'Time Format' section with two radio buttons: '24-Hr' (selected) and '12-Hr'.

Time

Time Setting ☒ 2013-02-14 14:29:23 Get Current Time

DST Setting ☐ 01-01 00:00 ~ 01-01 00:00 Time Format

GMT Setting GMT 24-Hr 12-Hr

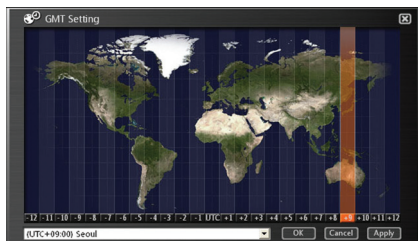
Used to set the unit's clock.

Select Retrieve Time to use the computer's system clock settings.

5. Using the Dedicated Viewer

5-11 Time Zone Configuration

Used to select your time zone.



5-12 microSD Card Folders

Folder Name	Description
"rec"	<ul style="list-style-type: none">Contains Continuous and Parking (inc. motion detection) recording files.<ul style="list-style-type: none">Continuous Recording: 1-minute filesMotion Detection Parking Mode: 20-second files/Continuous Parking: 1-minute files e.g.) Continuous: 20120412_111535_I.avi Parking: 20120412_111535_P.avi
"event"	<ul style="list-style-type: none">Contains Event, Manual, and Parking Event recording files.<ul style="list-style-type: none">Event (Impact) Recording: 20-second files (10 to 40 files by default)Parking Event: 20-second files e.g.) Continuous Event: 20120412_111535_I.avi Parking Event: 20120412_111535_P.avi
"update"	<ul style="list-style-type: none">Used for updating the firmware.Also contains a text (.txt) file that indicates the current firmware version.

5. Using the Dedicated Viewer

5-13 Upgrading Firmware

- 1 Connect the microSD card to the computer.
- 2 Create an "update" folder on the microSD card.
- 3 Copy the firmware files to the "update" folder.
- 4 Insert the microSD card into the bulls-i and reconnect the power cable.
- 5 The firmware will be upgraded automatically and the bulls-i will reboot.



- Do not forcibly turn off the bulls-i or remove the microSD card while firmware update is in progress. It could cause the system to malfunction.
- The microSD card's file system must be set to FAT16 or FAT32. Other system formats, including NTFS, are not supported.

6. Product Specifications and Certifications

6-1 Product Specifications

Function		Specification_ETK-B2400
Camera	Image Sensor	2.0 megapixels
	Channels	1
	Recording Angle	140°
	Video Compression	H.264
Recording	Resolution	1920 X 1080 (Full-HD), 1280 X 720 (HD)
	Frame Rate	30 fps (Max)
	Recording Modes	Continuous, Manual, Event, Parking
	Event Recording Sensor	3-Axis Acceleration Shock Detection Sensor
	Event Recording Time	5 seconds backwards and 15 seconds forwards (Full-HD)
GPS	Parking Mode	Motion detection and 3-Axis Acceleration Shock Detection Sensor
	Speed, Location, Google Map	Supported (sold separately)
Storage	Default	16GB microSD card
	Maximum	32GB
Audio	Input	Built-in MIC
	Output	Speaker (voice guide)
Power	Main Power	DC 12V to 24V, 200mA
	Sub Power (Internal)	Super Capacitor
Wi-Fi	Smartphone Connectivity	802.11n
Miscellaneous	Video Playback/Settings	Video Out (GPS navigation unit and external AV devices)
	Voice Guide	Supported



- This product's firmware is upgradeable. Firmware updates may improve the product's performance and are available for download at the manufacturer's website (www.bulls-i.com).
- Specifications of this product are subject to change without prior notice.

6. Product Specifications and Certifications

6-2 Product Certifications



- KCC: Broadcasting/communications device certification



- CE: European certification for industrial safety and quality



- FCC: U.S. Federal Communications Commission certification



RoHS
compliant

- RoHS: Restriction of Hazardous Substances Directive

7. Troubleshooting

If you are having trouble with this product, please check the following troubleshooting information before requesting servicing. Contact the customer center only if the problem persists after implementing the measures described below.

Problem	Solution
Video recordings are not being saved to the microSD card.	<ul style="list-style-type: none">• Remove the microSD card and try inserting it again.
The bulls-i is unable to read the memory card.	<ul style="list-style-type: none">• Format the microSD card and try again.• If the microSD card is old (expired), replace it with a new one.
What happens if the microSD card becomes full?	<ul style="list-style-type: none">• Existing recording data are overwritten with new data, starting with the oldest.
The recordings have poor picture quality.	<ul style="list-style-type: none">• Check to see if the protective film has been removed from the camera lens.• Check to see if the camera lens is dirty.• Check to see if the windshield is dirty or has obstacles such as dark tinting.
The bulls-i is not working.	<ul style="list-style-type: none">• Check the power connection.• Check to see if you are using an original power cable from the manufacturer.

8. Warranty

Regarding product servicing...

- In compliance with consumer compensation rules and regulations, Ether Technology Inc. offers the following warranty coverage for this product.
- If you experience a malfunction and require servicing, contact the nearest Ether Technology Inc. bulls-i product retailer.
- Visit www.bulls-i.com for the bulls-i for warranty coverage and details.

Covered

Malfunctions arising under normal use within the warranty period (1 year) are eligible.

Warranty period for products used for commercial purposes, however, is half that of the normal warranty period (6 months).

Paid Servicing

1) Non-Malfunctions

Once a servicing request is made, the consumers will be charged with a servicing fee if the concerned issue is found to be a non-malfunction. It is therefore important that you read this user manual carefully before making any servicing request (limited to cases where repairing is not possible and is subject to separate standards).

2) Malfunctions due to Consumer Negligence

- Malfunctions caused by disassembly or modification of the product by the consumer at their own discretion or due to consumer negligence (submersion in water, damage, etc.).
- Malfunctions arising from repair of the product by an individual who is not a technician from Ether Technology Inc. or one of its authorized affiliates.
- Malfunctions arising from use of unauthorized parts and/or accessories.
- Malfunctions arising from failure to adhere to the Safety Warnings and Precautions contained in the user manual.

3) Other Circumstances

- Malfunctions caused by natural disasters (fire, salt, water, lightning damage, etc.).
- Expired parts and accessories (attachments).
- Use of an unstable power supply against which impulse voltage cannot offer protection.

The product is covered under warranty for a period of one year.

Consumer Damage		Compensation	
		During Warranty Period	After Warranty Period
Defects and malfunctions arising under normal use during the warranty period	Need for critical repair within 10 days of purchase	Replacement	Not applicable
	Need for critical repair within 1 month of purchase	Replacement	
	Product damage that arose during transportation or installation	Replacement	
	Need for critical repair within 1 month of receiving a replacement	Replacement	
	Replacement not available	Refund	Paid servicing
	Can be repaired	Replacement	
	Malfunction with the same root cause occurs 3 times	Replacement	
	Malfunctions with different root causes occur 5 times	Replacement	
Malfunctions caused by consumer negligence	Misplacement of a product handed in by the consumer for repair purposes	Replacement	Product replacement following deduction of depreciation value
	Repair not possible because of parts unavailability	Replacement	
	Required parts are available, but the repair cannot be performed	Replacement	Product replacement following deduction of paid servicing fee and depreciation value
	Cannot be repaired	Product replacement following deduction of paid servicing fee	
	Can be repaired	Paid servicing	

Refund: Purchase Price (must present receipt)

About the Serial Number

The serial number identifies individual products, and it is important that you do not misplace it.

The manufacturer assumes no responsibility for any loss or damage resulting from misplacement of the serial number.

Product	Vehicle Drive Recorder	Date of Purchase	Serial Number
Model	ETK-B2400	Place of Purchase	Price



MADE IN KOREA